REMARKS

Claims 7, 10, 12-15, 20-25, 28-30, 33, 35-37 and 40-59 are pending and stand rejected by the Office. Reconsideration of the current rejections is respectfully requested in light of the remarks herein. No claims have been amended. A listing of the pending claims is provided herein for the examiner's convenience.

Claim Rejections 35 U.S.C. § 103(a)

Claims 7, 10, 12, 13, 20-25, 28-30, 33, 40, 42 and 43 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sweitzer (U.S. Patent No. 6,018,617) in view of Bloom (U.S. Patent No. 5,597,312) and further in view of Erickson (U.S. Patent No. 5,902,114). Claims 14, 15, 35-37 and 41 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sweitzer and Bloom in further view of Wen (U.S. Patent No. 6,341,959). Claims 44-53, 56, and 57 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sweitzer, Bloom and Erickson, and further in view of Ho (U.S. Patent No. 5,836,771). Claims 54, 55, 58 and 59 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sweitzer, Bloom, Wen and Erickson, and further in view of Ho.

Claim 7

It is respectfully submitted that the method of claim 7 is patentable over the combination of Sweitzer and Bloom and Erickson. As explained in Applicant's prior response, these references, either singly or in combination, do not disclose or teach automatically generating a mathematical word problem using a processor for automatically generating a text phrase positioned between a first numerical value corresponding to the first number variable and a

second numerical value corresponding to the second number variable based on the determined relationship, wherein generating the text phrase comprises automatically choosing by the processor one or more of word order, word choice, word format, sentence structure, grammar, and language of the text phrase based on the determined relationship, as required by claim 7.

In the Response to Arguments at p. 24-25 of the final Office Action, the Examiner cites to col. 3, lines 1-5 of Sweitzer and col. 20, lines 24-29 of Bloom as allegedly disclosing automatically generating a text phrase positioned between two numerical variables or automatically choosing one or more of word order, choice, format, sentence structure, grammar, and language, based on the determined relationship. These portions of Sweitzer and Bloom ***do not*** disclose generating mathematical word problems by automatically generating text phrases in the manner claimed in claim 7, contrary to the Office's erroneous suggestion.

First, with regard to Sweitzer, the Office has ***already admitted*** that Sweitzer ***does not disclose*** this limitation: "What Sweitzer fails to explicitly teach is wherein generating the text phrase comprises automatically choosing by the processor one or more of word order, word choice, word format, sentence structure, grammar, and language of the text phrase based on the determined relationship." Final Office Action at p. 3. Moreover, the Office's newly cited portion of Sweitzer at col. 3, lines 1-5 likewise does not disclose this limitation. That portion of Sweitzer merely states:

> A further object of the present invention is to provide a test generating system that allows an author to state a problem as a high-level, abstract expression, from which the system generates variations and determines the ***presentation automatically***.

This section on its face states merely that the ***presentation*** is chosen automatically. In constrast, the claim limitation at issue goes to the automatic selection of the ***content*** of the text phrase of the mathematical word problem since text phrase that is chosen is explicitly based

upon the ***relationship between the first number variable and second number variable***. Indeed, Sweitzer ***distinguishes*** the ***presentation***, i.e., the visual appearance of the test (which may be controlled automatically in Sweitzer's system) from the ***content*** stating at col. 1, lines 34-42:

> As noted, in order to display a question or problem on a test, two things must be considered: the ***content*** of the question, and the visual ***presentation*** of that content. Depending on what class of software is being used or is available, creating and storing content and presenting it is carried out in different ways. The content of a question is the educational core, a real-world fact that the student should know, or a computational skill that the student should be capable of applying.

Sweitzer further explains at col. 2, lines 8-27 that controlling the presentation (visual appearance) for mathematical word problems can be challenging because the formatting for mathematical expressions is more complicated than that for ordinary text:

> As can be appreciated, in order to have a successful math-test generating program with dynamic presentation capabilities, the software must be able to print or, more broadly, display mathematical expressions. Printing a mathematical expression has always been somewhat more difficult to accomplish than printing characters. Unlike ordinary text, which consists of relatively uniformly sized and spaced characters and spaces, mathematical expressions may also include numerals, operators, and a variety of symbols. In addition, the sizing and spacing of these components may be non-uniform. Further still, mathematical expressions may also take the form of curves on graphs, matrices, and other relatively complex forms. Thus, the methodologies used by, for example, word processing programs to produce and format textual output are not successful in a dynamic presentation setting. When the objective is to print a complete test consisting of a series of questions each containing one or more mathematical expressions, the deficiencies of existing formatting and printing technologies become even more apparent.

These above-noted excerpts plainly show that although Sweitzer may disclose automatically controlling the visual appearance (presentation) of mathematical word problems, there is ***no disclosure*** in Sweitzer of generating a mathematical word problem wherein

generating a text phrase for the problem comprises automatically choosing by the processor one or more of word order, word choice, word format, sentence structure, grammar and language of the text phrase based on a determined relationship between a first number variable and a second number variable, as the Office has already admitted.

Likewise, Bloom does not make up for this deficiency, contrary to the Office's new assertion. As noted above, the Office has now cited col. 20, lines 24-29, for allegedly disclosing automatically choosing by the processor one or more of word order, word choice, word format, sentence structure, grammar and language of the text phrase based on a determined relationship between a first number variable and a second number variable. The Office's assertion is erroneous. That portion of Bloom merely states:

> Once the conversation is complete, it is saved and automatically indexed according to its high level scenario, as well as by the specific sub-topics of conversation components that comprise it. The saved conversation can then be edited or else used by the system and method of the present invention.

This portion on its face merely indicates that a completed conversation can be saved and ***automatically indexed*** – it has nothing to do with automatic text generation. Indeed, the conversation referred to is a conversation between a trainee and a hypothetical customer in a computerized tutoring simulation for training a customer service representative (CSR) trainee on the procedures for conversing with a customer and using order entry software in simulated on-the-job customer service scenarios. *See* Bloom at col. 3, lines 49-64; col. 1, lines 20-13. Bloom, in fact, has nothing whatsoever to do with test generation or mathematical word problems. In any event, the cited portion of Bloom simply indicates that when the CSR trainee's conversation in the simulation has been completed and saved, it can be automatically indexed, i.e., catalogued,

according to its high-level scenario and sub-topic. Col. 20, lines 24-29. That is, it is automatically indexed so that someone else can locate that scenario. *Id.*

Accordingly, Bloom clearly does not disclose generating a text phrase comprising automatically choosing by the processor one or more of word order, word choice, word format, sentence structure, grammar and language of the text phrase based on a determined relationship between a first number variable and a second number variable.

Therefore, contrary to the Office's assertions in the Response to Arguments at pp. 24-25 of the Final Office Action, neither Bloom nor Sweitzer disclose the above-noted features in the portions of these references newly cited by the Office.

Moreover, the sections of the applied references cited in the body of the Final Office Action likewise do not disclose the above-noted features. As noted above, the Office has already admitted that Sweitzer fails to teach the automatic text generation feature of claim 7. The Office then cites to Bloom and Erikson as allegedly disclosing that feature. Office action at pp. 3-6. Specifically, the Examiner cites to various portions of Bloom as allegedly disclosing generating the text phrase comprises automatically choosing by the processor one or more of word order, word choice, word format, sentence structure, grammar, and language of the text phrase based on the determined relationship, as recited by claim 7. Office Action, pp. 3-4. However, the cited portions of Bloom do not disclose the automatic text generation feature of claim 7. Instead, Bloom indicates that whatever text generation is done in the authoring stage is explicitly done by the author, not done automatically:

> Given a completed discourse grammar, instructional designers and domain experts can then begin instantiating conversations for that grammar using the conversation author of the method and system of the present invention. The conversation author is a tool that allows authors to create conversations based on specific paths through or parts of the developed discourse grammar. ***The conversation author***

> ***works by having the author select the grammar path, or part, to be instantiated. Next, they either select an existing conversation to edit, or else create and name a new conversation***. Once the conversation is identified, they then execute the author functions. (Col. 19, lines 54-65, emphasis added.)
>
> In the case of "verbal situations", ***the author would type in*** the customer statement, request or question into the verbal situation input field. In the case of "operational situations", ***the author would type in*** the simulation situation input field, the name of the screen and field that the resulting action would take place in.
>
> * * *
>
> In the case of "verbal actions", ***the author would type in*** the CSR's response to the customer in the verbal action input field. In the case of "operational actions", ***the author would type in*** the correct response expected in the simulation action input field. In the case "cognitive actions", ***the author would type in*** the correct "decision" to be reached at that point in the conversation in the decision action input field. (Col. 20, lines 3-19, emphasis added.)

Additionally, the Examiner cites to various portions of Erickson as allegedly disclosing generating the mathematical word problem includes generating a text phrase positioned between a first numerical value corresponding to the first number variable and a second numerical value corresponding to the second number variable based on the determined relationship as recited by claim 7. Office action at pp. 5-6. Failing to identify which portion of Erickson teaches the automatic text generation recited by claim 7, the Examiner alleges that "[i]t is apparent that the mathematical word problems of Erickson are generated by generating a text phrase, and positioning it between a first and second numerical input value, based on the mathematical characterization of the problem." Office action at p. 5.

However, Erickson is generally directed to a method of teaching the formulation of word problems (i.e., teaching students how to do word problems). See, e.g., col. 4, lines 59-61, col. 5, lines 5-8 and 54-58, col. 6, lines 3-19. Notwithstanding the Examiner's allegations, Erickson contains no disclosure of generating mathematical word problems by automatically generating

text phrases in the manner claimed in claim 7. There are many ways of generating mathematical word problems. The Office's unsupported assertion that it is "apparent" the word problems in Eriksson are generated in the manner claimed is facially deficient. If the Office is asserting that such a feature is inherent (i.e., necessarily present), such an assertion is plainly wrong insofar as Sweitzer and Bloom explicitly describe inputting text of a word problem manually by a user, not automatically, as previously explained. Accordingly, the authoring of a mathematical word problem does not necessarily lead to generating the mathematical word problem by automatically generating text phrases in the manner claimed in claim 7. Accordingly, the Office's rejection plainly does not make out a *prima facie* case of obviousness and must be withdrawn.

Thus, it is respectfully submitted that the applied references, either singly or in combination, do not disclose or teach using a processor for automatically generating a text phrase positioned between a first numerical value corresponding to the first number variable and a second numerical value corresponding to the second number variable based on the determined relationship, wherein generating the text phrase comprises automatically choosing by the processor one or more of word order, word choice, word format, sentence structure, grammar, and language of the text phrase based on the determined relationship between a first number variable and a second number variable, as required by claim 7. Accordingly, withdrawal of the rejection and allowance of claim 7 is respectfully requested for at least these reasons.

Other Independent Claims

All of the other independent claims: 10, 20, 21, 22, 35, 40 and 41, recite similar distinguishing subject matter as that recited claim 7. As such, these claims are allowable at least for reasons similar to those explained above for claim 7. Further, the Office's reliance on Wen

(for allegedly disclosing language teaching using grammatical rules) does not make up for these deficiencies. Accordingly, it is respectfully requested that the § 103 rejections of claims 10, 20, 21, 22, 35, 40 and 41 be withdrawn and that these claims be allowed.

The remaining dependent claims are allowable at least by virtue of dependency.

Assignee at this time has not provided arguments in support of the patentability of the dependent claims. It is respectfully submitted that because the independent claims are now in condition for allowance, the dependent claims, which depend directly or indirectly therefrom, are also in condition for allowance. However, assignee reserves the right to argue the patentability of the dependent claims in the instant application at a future time, should that become necessary.

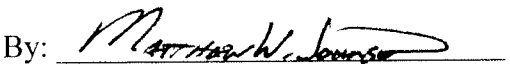
Conclusion

For at least the reasons set forth above, withdrawal of the rejections and allowance of this application are respectfully requested. Should there be any questions in connection with this application, the Examiner is urged to contact the undersigned at the number below to resolve any issues that may remain.

The Commissioner is authorized to charge any fees that may be required by this paper to Jones Day Deposit Account No. 503-013 to maintain the pendency of this application.

JONES DAY

Date: September 9, 2010

By: 

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